
IN THE UNITED STATES DISTRICT COURT
DISTRICT OF UTAH - CENTRAL DIVISION

INTERNATIONAL AUTOMATED
SYSTEMS, INC.,

Plaintiff,

vs.

DIGITAL PERSONA, INC.; MICROSOFT
CORPORATION; and JOHN DOES 1-20,

Defendants.

**MEMORANDUM OPINION
AND ORDER**

Case No. 2:06-CV-72

Judge Dee Benson

This case concerns technology involving a fingerprint identification system. On January 24, 2006, Plaintiff International Automated Systems, the exclusive licensee of U.S. Patent No. 5,598,474 (the “‘474 Patent” or the “Patent”), brought this patent infringement action against Defendant Digital Persona, Inc. and Defendant Microsoft Corporation. Before the Court are the parties’ briefs concerning construction of the claims contained in the ‘474 Patent, and two motions for summary judgment filed by the Defendants. On November 20, 2007, the Court held a *Markman* hearing and heard argument by the parties on claim construction as well as the motions for summary judgment.

I. Background

The ‘474 Patent, entitled “Process for Encrypting a Fingerprint onto an I.D. Card,” involves a fingerprint identification system. This invention is an apparatus that can read a body part such as a fingerprint, automatically identify it, and then store the information on a magnetic strip of less than 100 bytes contained on an ID card. Once it is stored the information can be

read by the apparatus so that it is compared with an actual live fingerprint. An automatic check will be made to determine if there is a match.

The invention has the ability to identify a person who has the right to use an ID card – such as a credit card, debit card, driver's license, or social security card – reducing the potential for credit card fraud and allowing for the admission (or exclusion) of persons into restricted areas. A fingerprint identification system has certain advantages over the current and widely used system using a "personal identification number" ("PIN") number, where the user must remember the PIN or save it separately. Unlike a fingerprint identification system, there is a higher chance for fraud when PIN numbers or picture identifications are used. The '474 Patent seeks to reduce fraud and provide for an efficient system.

A brief summary of the fingerprint identification system follows. The first step involves a camera scanning or reading a fingerprint in order to produce an image. The image produced is then converted to a digital image and inputted to a computer. The computer has a program that is designed to examine and determine the quality of the read. If the computer program identifies areas of the image that are of poor quality, it enhances the image.

In plain terms, enhancement is completing an image by filling in gaps and producing a more accurate picture of the image. Enhancement involves an optical scanner scanning in several directions the valleys and ridges of the finger, and determining where there are gaps in the lines. The program can calculate where the missing or distorted ridges and valleys should be and where they should connect. The computer program does this by determining the length and patterns of the fingerprint lines. High points of each line are referenced by the high points found on other lines, subject to proper order, sequence, and angle. Islands – comprised of lines where

both ends do not pass through the print's image – are located in reference to other lines and coordinates of the fingerprint. As the program determines the pattern of the valleys and ridges of the fingerprint image, the image is in a sense “cleaned up.” Although a line may appear to be a line end, the enhancement program has the ability to determine that the line end is actually a Y line, and thus the image is corrected. Similarly, a line may appear as two separate lines forming a gap in between the two, yet the program may determine that there is only one line forming no gap, and the image is corrected. This process of image enhancement is used to create a higher quality image and serves as a remedy for poor reads.

Without enhancement the computer program would have a difficult time identifying the lines accurately, and thus, would have difficulty finding a match. Prints without enhancement are difficult to match because of the number of places where a line is broken up. Ridges or valleys may be distorted or even lost. A poor read could produce many false lines, connections, and separations. Enhancing the image eliminates this problem. Enhancement is a critical part of the invention as it provides for a clear, accurate, and consistent read.

It is also noteworthy that the computer program performing enhancement can be programmed to locate *specific* unique identifying characteristics. For example, it may be programmed to look for ends of lines, specific types of lines, lines with a particular length, and lines with a certain curvature. Setting the program to identify certain types of unique identifying characteristics is a useful feature for security purposes. The degree of identification may vary depending on the level of security desired for that particular fingerprint identification.

Next, once the image is enhanced, the computer program identifies its unique identifying characteristics. Predetermined unique characteristics, such as ends of fingerprint ridges,

fingerprint ridge bifurcations, length of fingerprint ridge lines, and fingerprint ridge curves, are identified and a code is given that represents the relative location for the minutia in comparison to other unique identifiable parts. This code is encrypted onto a magnetic strip of less than 100 bytes, which can be retrieved and used to duplicate the major characteristics of a fingerprint.

What makes this invention effective is its ability to compare the code stored on the magnetic strip with a live fingerprint read. After the code is encrypted onto the card and the person wishes to use the card, the card is placed into the card reader to bring back the stored information into the computer. The person then places his or her finger onto the fingerprint reader and the information from the live fingerprint is deciphered by the computer program. The program identifies certain coordinates and patterns from the information on the magnetic strip, and tries to locate those points and patterns on the live read. The program can manipulate the image by rotating it to get different angles and positions, and it will perform a certain number of tries until a match is found or is not found. Depending on the level of security desired, a certain tolerance of error will be allowed when comparing the codes. If the two codes match within the allowed tolerance of error, the program indicates a correct read. Likewise, if there is no match, the program indicates an incorrect read.

In sum, this invention is able to read a biological part such as a fingerprint, and take complex forms and designate unique biological characteristics codes. These codes can be encoded onto the magnetic strip of an ID card or credit card. A comparison can be made of the live biological part with the number on the card to identify whether the identities match. This system is designed to alleviate fraud and ensure that a card is being used by its owner.

II. Claim Construction

Claim construction is a matter of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). The trial judge therefore “has the duty and responsibility to interpret [any] claims at issue.” *Exxon Chemical Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1556 (Fed. Cir. 1995). In the present case, the parties dispute the construction of eleven different terms and phrases contained within the claims of the ‘474 Patent. These disputed terms and phrases are highlighted below.

The claims of the ‘474 Patent read:

I claim:

1. An apparatus for reading unique identifying characteristics from a body part, transmitting said unique identifying characteristics to a computer, digitizing the characteristics, and then having a computer with the ability to separate out from the whole unique identifying characteristics into separate unique identifying characteristics and then distinguish and identify the different unique characteristics and then giving each of those unique identifying characteristics a unique code that represents the unique identifying characteristics type and location relative to other unique identifying characteristics for the purpose of affixing them on an identification document, or electronic storage medium including the following components:

means for transferring the characteristics from a *camera means* to a digitizer;

means for transferring the characteristics from the digitizer to the *computer* for the purpose of separating out from the whole image each unique identifying characteristic;

means for identifying each unique characteristic by type;

means for giving each identifying characteristic its own unique code which is comprised of the type and also relative location;

means for transmitting the unique identification characteristics code to the computer for storage and processing; and

means for imprinting the unique identification characteristics codes on the electronic storage medium.

2. An apparatus as set forth in claim 1, including the components of:

means for reading the characteristics from a live impression of a body part;

means for digitizing the live impression;

means for transmitting said digital impression to a computer;

means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position;

means for comparing in the computer a set of stored unique identification characteristic codes the codes derived from the live digitized impression of the live body part to establish identity of both the inputs; and

means for sending a signal to verify the identity of the person evidencing the live impression of the body part.

3. An apparatus as set forth in claim 2, wherein the reading of the characteristics from a live impression of a body part uses a *lens* that has the capacity to have within itself internal reflection that when a certain type of material touches the outside portion of the lens that at the point of touching the internal reflection is destroyed and an image of where the internal reflection is destroyed is transmitted to a *camera*.

4. An apparatus as set forth in claim 3, wherein the *lens* is a prism.

5. An apparatus as set forth in claim 2, wherein said body part is a fingerprint.

6. An apparatus as set forth in claim 2, wherein said body part is a handprint.

7. An apparatus as set forth in claim 2, including printing an impression of the body part on a transactional document.

8. An apparatus as set forth in claim 1, wherein the camera means is a video camera.

9. An apparatus as set forth in claim 1, wherein said body part is a fingerprint.

10. An apparatus as set forth in claim 1, wherein said body part is a handprint.

Accordingly, the Court will address each of the construction disputes seriatim.

A. Legal Standard

When interpreting an asserted claim, “the court should look first to the intrinsic record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Within the intrinsic record, the starting point for any claim construction analysis is the language of the claims themselves. A claim term should be given the ordinary and customary meaning “that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*). “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* Indeed, the specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Id.* at 1315 (quoting *Vitronics*, 90 F.3d at 1582).

“In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term.” *Vitronics*, 90 F.3d at 1583. In the rare circumstances when it does not, extrinsic evidence may “shed useful light on the relevant art.” *Phillips*, 415 F.3d at 1317. But in all circumstances, extrinsic evidence is “less significant than the intrinsic record,” *id.* (quotations omitted), and is “unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence,” *id.* at 1319.

B. “Camera Means” (First Clause of Claim 1) and “Camera” (Claim 3)

Plaintiff’s Proposed Construction: A generic term referring to any suitable reader that can read a body part and generate an electronic representation of the body part.

Defendants’ Proposed Construction: A light sensitive device that receives a visual image and records the image on film or translates the image into signals.

The dispute here is whether “camera” or “camera means” should be narrowly construed to mean an optical device, i.e., a light-sensitive device that receives a visual image, or broadly construed to mean a generic body part reader. Plaintiff argues that in the claims at issue, the Patentee deliberately used the term “camera means” to encompass more than just a camera. The doctrine of claim differentiation supports this argument wherein Claim 8 states that the “camera means” is a video camera and Claim 3 describes the additional elements of a lens and camera as part of the “camera means.” Furthermore, the specification teaches that “camera means” is a generic term for the fingerprint reader by describing the reader as: “[a] video camera or suitable replacement,” ‘474 Patent at 8:55-56; “any suitable reader that can render a valid picture of the fingerprint,” *id.* at 6:20-22; “any device that can convert an image to a picture form,” *id.* at 9:21-22; and “some form of reader or transducer,” *id.* at 2:63-64.

Defendants respond that although the specification notes that other suitable fingerprint readers could be used, the claims do not recite a “reader,” they recite a “camera,” and thus Plaintiff should be limited to what they claimed. Looking closely at the claim language itself, it is clear to the Court that “camera means” is used broadly, and encompasses more than just a video camera. It is also clear, however, that the term does not refer to non-optical devices. Although the specification generally states that “[a] video camera or suitable replacement” can be used, *id.* at 8:55-56, it specifically teaches that “[t]he reader utilizes an optical scanner” *id.* at 6:7. Reading the claim in the context of the entire patent, one of ordinary skill in the art at the time of the invention would have understood that another suitable fingerprint reader would be another optical device. Therefore, in accordance with Defendants’ proposed construction, the Court finds that the terms “camera means” and “camera” as used in the claims of the ‘474 Patent refer to “a light sensitive device that receives a visual image and records the image on film or translates the image into signals.”

C. “The Computer” (Second and Fifth Clause of Claim 1; Fifth Clause of Claim 2)

Plaintiff’s Proposed Construction: A computer previously recited in the claim.

Defendants’ Proposed Construction: All occurrences of “the computer” refer to the same computer.

Defendants propose construing all occurrences of the term “the computer” throughout the claims as referring to the same computer. Defendants cite the plain language of the claim and the prosecution history to argue that all events of the ‘474 Patent must occur on the same computer. When each individual clause is read in context with the entire claim, however, it is clear that “the computer” refers to a computer recited in the preamble of the claim that is capable of processing unique identification codes. The term “the computer” simply refers to “a

computer" that is programmed to perform the functions of the '474 Patent. Although one embodiment of the Patent can operate using a single computer, the plain language of the claim illustrates that the Patent does not require operating only one computer.

This construction is further supported by the specification. Two events occur in this Patent. The first is the encoding event, where a person's identifying information is obtained and stored in a magnetic medium. '474 Patent at 10:57-65; 12:6-9. The second is the recognition event, where identifying information is obtained from a live person and compared with the information stored in the magnetic medium. *Id.* at 10:66-11:11. The specification makes clear that this second event – the recognition of a live print – can occur at a number of locations, such as a retail store, and need not occur at the same computer where the print was first encoded. *Id.* at 10:24-26. Accordingly, the Court finds that the term "the computer" refers to a computer previously recited in the claim, and does not refer to the same computer throughout the claims.

D. "Means for Identifying Each Unique Characteristic by Type" (Third Clause of Claim 1)

Plaintiff's Proposed Construction:

Function - Identifying each unique characteristic by type.

Structure - One or more components (such as a computer) adapted to identifying each unique characteristic by type.

Defendants' Proposed Construction:

Function - For every unique characteristic that was read from the body part (at least including every such characteristic of a type recited in the '474 Patent, such as ridge bifurcations, ridge endings, ridge lines and ridge curves), accurately identifying that characteristic and its type.

Structure - The computer described and shown in the '474 Patent programmed to go through an image of a fingerprint to determine what the unique characteristics of that print are. *See* '474 Patent at 7:8-34.

The parties agree that the phrase “means for identifying each unique characteristic by type,” and all other clauses beginning with “means for” language, are means-plus-function limitations under 35 U.S.C. § 112, ¶ 6. Under that provision, “[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6. In other words, a patent applicant need not define the structure for performing a particular function in the claim, as long as the structure has been described in the patent specification. When construing a means-plus-function limitation, a court must then focus on two tasks: (1) construing the function recited in the claim, and (2) identifying the structure in the specification that is clearly linked to that function. *See WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1347 (Fed. Cir. 1999).

1. Function

The parties disagree about whether the stated function requires identifying “each” unique characteristic read from the body part, or only some of the characteristics. Defendants contend that “each” means all, that every time a body part is read, the computer program identifies all the unique characteristics on that body part. Plaintiff argues that “each” refers to only those unique characteristics that the computer is programmed to find, i.e., Plaintiff contends that the computer program can be adapted to identify only those unique characteristics that the end user requests. This allows the invention to function at different security levels. The computer can be programmed to identify many unique characteristics in high security environments and can be programmed to identify only a few unique characteristics in low security environments.

The specification states, “the computer program finds all of the unique characteristics of the live canned [sic: scanned] biological image.” ‘474 Patent at 10:67-11:2. Defendants argue that this language from the specification supports their construction that the computer program must first identify *all* of the unique characteristics of the body part before it can break these characteristics down into a unique identification code. But just a few lines later, the specification gives a detailed explanation of the computer program. “The computer program locates the unique biological characteristics . . . *that the computer program is programmed to locate.* For example, the computer program may be programmed to look for end of lines. It may be programmed to look for specific kinds or types of end lines and relative position along with the relative general direction the line is coming from or relative angle . . .” *Id.* at 11:51-57 (emphasis added). When the specification is read in its entirety, it is apparent that “each” refers to each of those unique characteristics that the computer is programmed to find. Therefore, the Court finds that Plaintiff’s proposed construction of “each” is the proper construction with regard to the function of this disputed claim term.

2. Structure

Plaintiff argues that the “structure disclosed by the specification for accomplishing this function is one or more components such as a computer adapted to identifying each unique characteristic by type.” Plaintiff’s Markman Brief, p. 12. In essence, Plaintiff’s proposed structure is any component capable of performing this function. This construction is overly broad. Although § 112, ¶ 6 permits the use of means-plus-function language in claims, these claims are “limited to the structure, material, or acts disclosed in the specification and their equivalents.” *WMS Gaming*, 184 F.3d at 1348 (citing *Valmont Indus., Inc. v. Reinke Mfg. Co.*,

Inc., 983 F.2d 1039, 1042 (Fed. Cir. 1993)) (“Section 112 thus permits means-plus-function language in a combination claim, but with a ‘string attached.’ The ‘attached string’ limits the applicant to the structure, material, or acts in the specification and their equivalents.”).

The only structure disclosed in the specification to “identify each unique characteristic by type” is the computer programmed to perform the algorithm described in Column 7, lines 8-34 of the Patent. These lines explain that the computer identifies the unique characteristics of the body part “by scanning through the print in several directions.” ‘474 Patent at 7:9-10. This is the only algorithm the Patent clearly links to the function of identifying the characteristics by type. Therefore, in accordance with Defendants’ proposed construction, this algorithm is the corresponding structure under § 112, ¶ 6. *See WMS Gaming*, 184 F.3d at 1348 (finding that the district court erred “by failing to limit the claim to the algorithm disclosed in the specification”).

E. “Means for Giving Each Identifying Characteristic Its Own Unique Code Which is Comprised of the Type and Also Relative Location” (Fourth Clause of Claim 1)

Plaintiff’s Proposed Construction:

Function - Giving each identifying characteristic its own unique code which is comprised of the type and also relative location.

Structure - One or more components (such as a computer) adapted to giving each identifying characteristic its own unique code which is comprised of the type and also relative location.

Defendants’ Proposed Construction:

Function - Giving every unique identifying characteristic read from the body part its own unique code which is comprised of the type and also relative location so that all the unique codes for the identifying characteristics of the body part total no more than 100 bytes.

Structure - The computer described and shown in the ‘474 Patent programmed to find only the unique parts of an image of a body part and then give them each a unique identification number or code and then combine them all into a unique identification code. The unique identification code for each unique part is comprised of a location reference and a type reference.

1. Function

The parties have two disputes regarding the construction of this function: (1) whether “each identifying characteristic” means all the identifying characteristics read from the body part or just those identifying characteristics that the computer is programmed to locate, and (2) whether the unique code totals no more than 100 bytes. The issue with “each identifying characteristic” here is the same as discussed in section II.D.1 above with regard to “means for identifying each unique characteristic by type.” As explained above, the claim language and specification reveal that “each” refers to only those unique characteristics that the computer is programmed to locate and does not refer to *all* the “unique identifying characteristics” that could be read from the body part.

As for the 100 bytes limitation, the ‘474 Patent makes clear that this invention is capable of storing the unique code in less than 100 bytes. Plaintiff argues, however, that the claim should not be so limited. Although the fingerprint information can be stored in a magnetic strip totaling less than 100 bytes, the plain language of the claim never imposes such a numerical limitation. Yet, as stated above, “claims must be read in view of the specification, of which they are a part.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (*en banc*) (quotations omitted). Here, not only does the written description make clear that the invention is capable of storing the unique code in less than 100 bytes, it explains that this limitation is what distinguishes it from prior art. ‘474 Patent at 1:22-25. More specifically, the specification states: “[t]his invention relates to an apparatus that can read and identify fingerprints automatically, and then store the information about the fingerprint on an I.D. card’s magnetic strip of less than 100 bytes.” *Id.* at 1:6-11. Although the specification does state that different

media sizes may be used to store different amounts of unique identifiable code, *id.* at 4:60-61, it does not state that these varying media sizes for storage will exceed 100 bytes. This is in contrast to the three specific references confining the unique code onto a “memory device of 100 bytes or smaller.” *Id.* at 11:21-22; 1:6-11; and 1:22-25.

Reading this claim in connection with the specification, therefore, leads one skilled in the art to understand that “means for giving each identifying characteristic its own unique code” is limited to giving a code that totals no more than 100 bytes. Because “claims cannot be of broader scope than the invention that is set forth in the specification,” *On Demand Machine Corp. v. Ingram Industries, Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006), the Court finds that all unique codes for the identifying characteristics of the scanned body part total no more than 100 bytes.

2. Structure

Plaintiff’s proposed structure is again broad enough to include any means for performing the stated function. As stated in section II.D.2 above, this construction is overly broad. When a claim is recited in means-plus-function language, the applicant is limited to the structure clearly disclosed in the specification. *See WMS Gaming Inc.*, 184 F.3d at 1348. Therefore, the Court finds that the specific structure disclosed in the specification for performing this function, namely the computer disclosed in the specification that is programmed to carry out the algorithm, *see* ‘474 Patent at 3:34-39; 3:46-4:6; 5:34-51; and 10:57-11:10, is the structure for “giving each identifying characteristic its own unique code which is comprised of type and also relative location.”

F. “Means for Transmitting the Unique Identification Characteristics Code to the Computer for Storage and Processing” (Fifth Clause of Claim 1)

Plaintiff’s Proposed Construction:

Function - Transmitting the unique identification characteristics code to the computer for storage and processing.

Structure - A communications link.

Defendants’ Proposed Construction:

Function - Sending the unique identification characteristics code from a source outside the computer that received the characteristics back to that computer. This cannot merely be a transfer between different components within the computer. The language “for storage and processing” is a statement of intended use that is not a limitation on the claims.

Structure - A magnetic card reader and a connection between the card reader and the computer of Figure 2 of the ‘474 Patent.

1. Function

The dispute here is whether transmitting codes “to the computer” requires transmitting them from some point outside the computer or whether it can include transmitting the codes from within the same computer. Plaintiff argues that transmitting codes to the computer “can all be done internal of the computer . . . with the computer program.” Expert Report of Craig J. Madson at 29, Dkt. No. 38. But the plain language of the claims and the specification clearly teaches that these unique codes are transmitted to the computer from another source outside the computer.

To transmit a code “to the computer,” the code must come from somewhere else – a source outside the computer. “To” does not have the same meaning as “from” or “within.” Thus, the plain language of the claim supports Defendants’ construction of “to the computer.” Defendants’ construction is further supported by the specification. Every time the specification refers to a code being transmitted to the computer, the code is coming from somewhere else. *See*

‘474 Patent at 6:27-53; 1:8-15; 9:54-10:13; and Fig. 2. In contrast, nowhere in the specification does it talk about the codes being transmitted within the computer.

Because the plain language of the claim and the specification clearly support Defendants’ proposed construction that transmitting “to the computer” requires transmitting from a source outside of the computer, the Court adopts that construction. *Phillips*, 415 F.3d at 1316 (“The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.”). As stated previously, however, the Court does not find that the transmission of the code must be back to the same computer from which the code was originally received. In other words, the term “the computer” is not limited to the same computer.

2. Structure

Having determined that the function of this clause is the transmitting of the unique identification characteristics code to the computer, the Court must now determine the corresponding structure. “In order to qualify as corresponding, the structure must not only perform the claimed function, but the specification must clearly associate the structure with performance of the function.” *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002).

Plaintiff again makes a broad claim with regard to the corresponding structure. Plaintiff argues that the structure disclosed by the specification is any communications link capable of performing the stated function. Plaintiff points to the language of the specification to argue that once the identifying characteristics are encoded, that information is transmitted to a hard drive or other non-transient storage component within the computer. ‘474 Patent at 12:6-9 (“This code is

stored on some storage medium for later use by the program to identify the identity of the person trying to gain access to some device.”). But nothing in the language relied on by Plaintiff provides for the transmission of data, nor does it mention a communications link. The language simply refers to storage, which cannot provide the corresponding structure because it is not clearly linked to the function of “transmitting the unique identification characteristics code to the computer.”

The only structure disclosed in the specification for transmitting the code to the computer is the card reader. The specification explains:

[The program] separates the information it needs and then converts that information to a *unique biological characteristic identification code*. After it has located *the code*, it encrypts the number onto the ID card for later use. Thereafter, when a person wishes to use the card, the person places the card into a *card reader to bring the information contained on the card back into the computer and its program*. The person next places the appropriate finger onto the fingerprint reader or other biological part. The program then compares the code that was on the card to the unique biological characteristic identification code that came from the fingerprint reader to see if they both match to within a reasonable tolerance for errors.

‘474 Patent at 6:30-49 (emphasis added). The specification, therefore, clearly links the card reader and the connection between it and the computer to the function of transmitting the unique identification characteristics code to the computer. Thus, the card reader and the connection between it and the computer constitute the corresponding structure.

G. “Means for Imprinting the Unique Identification Characteristics Codes on the Electronic Storage Medium” (Sixth Clause of Claim 1)

Plaintiff’s Proposed Construction:

Function - Placing the unique identification characteristics codes on the electronic storage medium.

Structure - One or more components (such as a processor) adapted for imprinting the unique identification characteristics codes on the electronic storage medium.

Defendants' Proposed Construction:

Function - Storing the unique identification characteristic codes in a permanent state on an electronic storage medium so that the unique identification characteristics codes remain on the electronic storage medium when the medium is disconnected from power supplies and from other devices. However, the permanent state does not necessarily prevent the user from intentionally erasing the unique identification characteristics codes.

Structure - The card writer 21 of Figure 2 of the '474 Patent that can imprint the unique identification characteristics code on a magnetic strip card.

1. Function

The dispute here is whether "imprinting" requires storing in a permanent state so that the information remains when the storage medium is disconnected from power and other devices.

Defendants cite a generally used dictionary to argue that the word "imprint" is commonly understood to mean "to fix indelibly or permanently." *Webster's Ninth New Collegiate Dictionary* 606 (1988). Although reference to a general purpose dictionary may be helpful when trying to construe commonly understood words, "in many cases that give rise to litigation . . . determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art." *Phillips*, 415 F.3d at 1314. This requires the court to first examine "the words of the claims themselves, the remainder of the specification, the prosecution history," and other evidence relating to relevant scientific principles. *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The most prominent teaching in the specification with regard to this function is its ability to encode the unique identification characteristics code "onto the magnetic strip of an ID card or credit card." '474 Patent at Abstract. *See also id.* at 1:7-21; 5:52-63 ("The object of this invention is to read a fingerprint into a computer. Then, through a software routine, break down

the information contained in the fingerprint into a numeric code. The code is then encoded onto the magnetic strip of a card.”); 8:61-64 (“In summary, the objective of this patent is to process the information on a person’s fingerprint in such a way as to allow that information to be placed onto the magnetic strip of a card.”); 9:62-67 (“During the first phase, the process puts the unique biological information code or unique number onto a magnetic strip on the back of card 22, in encrypted format.”). Plaintiff argues that although imprinting can include permanence, the specification is more broad. It teaches that the unique code is stored onto “some storage or memory device,” *id.* at 10:63-65, and does not impose a limitation of permanency.

The only “storage” or “memory devices” that the specification identifies, however, are magnetic media devices such as the magnetic strip on a credit card or a computer disk. *Id.* at 4:63-65. These devices by their very nature are forms of permanent, non-volatile memory storage. While these devices are susceptible to erasure, as Defendants acknowledge, they are permanent in the sense that the unique codes contained on them will not be lost when they are disconnected from power.¹ Contrary to what Plaintiff suggests, Plaintiff’s Opposition Brief, pg. 13, nowhere in the specification does it state that the unique code could be stored in a transient form, such as random access memory, nor would one skilled in the art understand that the memory mediums disclosed in the specification include volatile memory devices. Therefore, relying on the plain language of the claim and the specification as understood by one skilled in the art, the Court adopts Defendants’ construction with regard to the function of this clause.

¹ “A non-volatile memory retains its contents even after power is shut off.” *SanDisk Corp. v. Memorex Products, Inc.*, 415 F.3d 1278, 1280 (Fed. Cir. 2005).

2. Structure

As with all the other construction disputes, Plaintiff argues broadly that the structure is one or more components capable of performing the stated function. Plaintiff points to language in the specification that discusses storing data generally in order to demonstrate that the structure in this clause is “a component for storing the encoded information in a suitable magnetic media.” Plaintiff’s Markman Brief, pg. 19. *See* ‘474 Patent 1:33-35; 3:31-39; 4:32-51. Specifically, Column 10, lines 39-46 of the Patent states:

[t]he reader, the computer, and the program could be used for keyless locks. In some applications the card is not necessary, such as situations where a limited number of people have access. These could be used for keyless entries into homes, cars, and even computers. This invention could also be used for almost any type of unattended security entry, such as security areas at work, for the government, for hotels, etc.

Id. at 10:39-46. Plaintiff argues that from this language in the specification, it is clear that the invention is capable of storing the unique code on many types of media and is not limited to only storing the data onto the magnetic strip of a credit card. Accordingly, the structure to perform this function cannot be limited to the card writer as Defendants suggest.

However, all the language that Plaintiff quotes as structure is nothing more than “broad functional language.” *Chiuminatta Concrete Concepts, Inc. v. Cardinal Industries, Inc.*, 145 F.3d 1303, 1308 (Fed. Cir. 1998). Although the specification explains that the invention could be used to perform the function of keyless entry, the specification provides no corresponding structure. In contrast, the specification clearly sets out the structure for imprinting the unique code onto a magnetic strip: “The computer sends this information to an encoding device 21 that can encode the information onto the magnetic strip on the card.” ‘474 Patent at 9:65-67. *See also id.* at 5:55; 6:26; and Fig. 2. This is the only structure clearly linked to performing the

function of “imprinting the unique identification characteristics code on the electronic storage medium.” The Court finds, therefore, that the card writer is the corresponding structure to this function.

H. “Means for Reading the Characteristics from a Live Impression of a Body Part”

(First Clause of Claim 2)

The parties agree that the function for this clause is “reading the characteristics from a live impression of a body part.” The dispute is over what the corresponding structure is.

Plaintiff’s Proposed Construction:

Structure - Device adapted to read the characteristics from a live impression of a body part.

Defendants’ Proposed Construction:

Structure - An optical fingerprint reader that can read the characteristics from a live impression of a body part.

As stated above, means-plus-function claims are “limited to the structure, material, or acts disclosed in the specification and their equivalents.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1348 (Fed. Cir. 1999) (citing *Valmont Indus., Inc. v. Reinke Mfg. Co., Inc.*, 983 F.2d 1039, 1042 (Fed. Cir. 1993)). Plaintiff argues that the structure for “reading the characteristics from a live impression of a body part” is any device adapted to perform this function. In support of this construction, Plaintiff points to language in the specification explaining that “the system can use any suitable reader that can render a valid picture of the fingerprint.” ‘474 Patent at 6:20-25; *see also id.* at 2:62-64; 9:19-24.

The only fingerprint reader specifically described in the specification, however, is the optical fingerprint reader shown in Fig. 1 of the ‘474 Patent and described in detail in the specification. *See id.* at 6:7-16; 9:25-53. General statements regarding “any suitable reader,”

therefore, do not constitute corresponding structure because the specification “fails to specifically identify” any form of reader or transducer that is non-optical. *Fonar Corp. v. General Elec. Co.*, 107 F.3d 1543, 1551-52 (Fed. Cir. 1997) (“The ‘966 specification discloses use of a generic gradient wave form. Although it states that other wave forms may be used, it fails to specifically identify those wave forms. Thus, under section 112, ¶ 6, claim 12 is limited to use of a generic gradient wave form and its equivalents.”). Therefore, because the only form of reader described in the ‘474 Patent specification is an optical fingerprint reader, Plaintiff is limited to this structure.

I. “Means for Separating Out from the Characteristics Its Unique Identifying Characteristics and Identifying Them by Type and Position” (Fourth Clause of Claim 2)

Plaintiff’s Proposed Construction:

Function - Separating out from the characteristics its unique identifying characteristics and identifying them by type and position.

Structure - One or more components (such as a computer) adapted to separating out from the characteristics its unique identifying characteristics and identifying them by type and position.

Defendants’ Proposed Construction:

Function - Distinguishing between every unique identifying characteristic read from the body part and determining the characteristic’s type and position.

Structure - The computer described in the ‘474 Patent programmed to go through an image of a fingerprint to determine what the unique characteristics of the print are. *See* ‘474 Patent at 7:8-34.

1. Function

The dispute here is almost identical to the one discussed in section II.D.1 above. The parties disagree as to whether “its unique identifying characteristics” refers to all the unique identifying characteristics from the body part, or only those unique identifying characteristics

that the computer is programmed to find. As stated above, when the specification is read in its entirety and in context with the claim, it is clear to the Court that “its unique identifying characteristics” refers to only those characteristics that the computer is programmed to find. Therefore, the Court finds that Plaintiff’s proposed construction is the proper construction with regard to the function element of this disputed claim term.

2. Structure

“Section 112 . . . permits means-plus-function language in a combination claim, but with a ‘string attached.’ The ‘attached string’ limits the applicant to the structure, material, or acts in the specification and their equivalents.” *Valmont Indus., Inc.*, 983 F.2d at 1042. The only structure disclosed in the specification for “separating out and identify the unique characteristics by type” is the computer programmed to perform the algorithm described in Column 7, lines 8-34 of the ‘474 Patent. These lines explain that the computer identifies the unique characteristics of the body part “by scanning through the print in several directions.” ‘474 Patent at 7:9-10. This is the only algorithm the Patent clearly links to this function. Therefore, in accordance with Defendants’ proposed construction, this algorithm is the corresponding structure under § 112, ¶ 6. See *WMS Gaming*, 184 F.3d at 1348; section II.D.2 supra.

J. “Means for Comparing in the Computer a Set of Stored Unique Identification Characteristic Codes the Codes Derived from the Live Digitized Impressions of the Live Body Part to Establish Identity of Both the Inputs” (Fifth Clause of Claim 2)

Plaintiff’s Proposed Construction:

Function - Comparing a set of stored unique identification characteristics codes with the codes derived from the live digitized impressions of the live body part to establish identity of both the inputs.

Structure - One or more components (such as a computer) adapted to comparing a set of stored unique identification characteristic codes with the codes derived

from the live digitized impressions of the live body part to establish a match or no match situation.

Defendants' Proposed Construction

The phrase is indefinite for at least the following reasons: (1) the term “both the inputs” lacks antecedent basis, and (2) there is no corresponding structure in the specification for “comparing . . . to establish identity of both the inputs” because the specification describes, at most, using one set of codes to establish the identity of another set of codes.

The plain language of the claim establishes that the function of this clause is to compare the identification code derived from a live impression to that of the stored identification code to determine whether the two codes match. Defendants argue that this clause fails for indefiniteness because: (1) there is no antecedent basis for the phrase “both the inputs,” and (2) there is no corresponding structure to carry out this function.

1. “Both the Inputs”

A claim term should be given the ordinary and customary meaning “that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*). “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* The language of the Fifth Clause itself provides antecedent basis for the phrase “both the inputs.” It explains that the program will compare a set of stored identification characteristic codes (e.g., codes stored on the magnetic strip of a credit card), with codes derived from a live impression. Therefore, from simply reading the claim, one skilled in the art would understand that “both the inputs” refers to the stored code and the code derived from the live impression. Furthermore, when the claim is read in the context of the entire patent, including the specification, it is clear

that “both the inputs” refers to the stored code and the code derived from the live impression.

See ‘474 Patent at 12:10-20. The phrase “both the inputs” therefore has antecedent basis in both the claim and the specification, and is not indefinite.

2. Structure

Plaintiff argues that both the claim and the specification teach one skilled in the art how to compare the inputs and describes the structure for doing so. For example:

In comparing a live biological characteristic to that of the stored unique biological characteristic identification code, the program finds on the live scanned image the same type of biological characteristics. If the biological characteristics are found, the program then checks to see if they are in the same relative location. If the predetermined number of biological characteristic identification codes match, then the computer program indicates a match condition. If the predetermined number of biological characteristics do not match, then the computer program indicates a no match condition.

‘474 Patent at 12:10-20.

From the language cited above, it is clear that the stored code is used to identify the live code. In other words, one input is used to establish the identity of the other input. Defendants argue, however, that there is nothing in the specification which discloses a structure for identifying both the inputs separate and apart from each other, which Defendants allege is what Clause Five requires. This technical argument misconstrues the plain language of the claim.

Clause Five provides a means for comparing the stored code with the live code to “establish identity of both the inputs,” or stated differently, to find a match among both the inputs.² From a plain reading of the claim, the function recited by Clause Five is not, as Defendants allege, to establish the identity of each input separate and apart from the other.

² At oral argument both parties agreed that the words “establish identity” in Clause Five means “finding a match.”

Rather, the function is to compare two inputs, the input from the stored information and the input from the live impression, to establish a match. With this understanding, the language of the specification recited above, clearly discloses the structure for performing this function. *See id.* Therefore, Clause Five of Claim Two does not fail for indefiniteness.

K. “Lens” (Claims 3 - 4)

Plaintiff’s Proposed Construction: A device for altering the path of electromagnetic radiation. For the apparatus of claim 3, it includes a device that has the capacity for internal reflection so that when a certain type of material (for example a fingerprint) touches the outside of the lens, at the point of touch the internal reflection is destroyed and an image of where the internal reflection is destroyed is transmitted.

Defendants’ Proposed Construction: A body that has two opposite regular surfaces, at least one of which is curved, that is structured and positioned to form an image by focusing a beam of electromagnetic radiation.

The issue here is whether a lens has at least one curved surface. As with all other construction disputes, Plaintiff argues broadly that a lens includes any device used for altering the path of electromagnetic radiation. Plaintiff finds support for this construction in the specification. When referring to a lens, the specification states that a fingerprint reader “has a lens . . . which must have the capability to cause a proper refraction of the fingerprint

While there are several lens that will cause such an effect, such as, magnifying lens placed in the proper location and angles, it is believed the best device for the refraction lens is a half circle.” ‘474 Patent at 9:25-32. Plaintiff argues, therefore, that the specification contemplates the use of several suitable lenses and should not be limited to a lens with a curved surface.

As has been repeatedly stated, a claim term should be given the ordinary and customary meaning “that the term would have to a person of ordinary skill in the art in question *at the time of the invention.*” *Phillips*, 415 F.3d at 1313 (emphasis added). In 1995, when the ‘474 Patent

was filed, one skilled in the art would have understood that a lens would have at least one curved surface. Furthermore, although the specification states that “several lens” may be used, ‘474 Patent at 9:29-30, the preferred lens disclosed in the specification of the Patent is described as being a “half circle.” *Id.* at 9:34-40; Fig. 1. The only other type of lens disclosed in the specification is a “magnifying lens,” *id.* at 9:30, which would also include at least one curved surface. Therefore, one skilled in the art at the time of the invention would interpret the plain language of the claim and specification to determine that “lens,” as used in Claims Three and Four, refers to “a body that has two opposite regular surfaces, at least one of which is curved, that is structured and positioned to form an image by focusing a beam of electromagnetic radiation.”

III. Defendants’ Motion for Summary Judgment of Invalidity

Under the Definiteness Requirement of 35 U.S.C. § 112

Summary judgment is appropriate “if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(c). “Because a patent is presumed to be valid, the evidentiary burden to show facts supporting a conclusion of invalidity is one of clear and convincing evidence.”

Automotive Technologies Intern., Inc. v. BMW of North America, Inc., 501 F.3d 1274, 1281 (Fed. Cir. 2007) (citing *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1238-39 (Fed. Cir. 2003)).

Defendants argue that the structure corresponding to Clause Five of Claim 1, “means for transmitting the unique identification characteristics code to the computer for storage and

processing,” is the card reader. In the alternative, Defendants argue that if the Court finds that the structure for this clause is anything other than the card reader, then Claim 1 is invalid because there is no corresponding structure in the specification that supports this clause. Because the Court has construed the card reader to be the corresponding structure for “means for transmitting the unique identification characteristics code to the computer for storage and processing,” the Defendants’ argument is moot and the Court need not address this motion for summary judgment.

**IV. Defendants’ Motion for Summary Judgment of Invalidity Under
the Written Description, Enablement, and “Regards as Invention”
Requirements of 35 U.S.C. § 112**

A. Defendants Argue that the ‘474 Patent Claims Lack Image Determination and Enhancement Capabilities

Defendants brought this summary judgment motion on the basis that the ‘474 Patent is invalid under 35 U.S.C. § 112 because it fails to meet three requirements under the statute: the written description, enablement, and “regards as invention” requirements. The Patent specification details the steps taken in order for the fingerprint identification system to work. A camera takes an image of a body part, which is transferred to a digitizer. This image is digitized and transferred to a computer, where the computer program enhances the image after it has determined the quality of the image. Once the image has been enhanced, the program identifies the unique characteristics, and assigns a code. This code is imprinted onto storage, which can be transmitted back to the computer where the code can retrieve the unique characteristics of the fingerprint. Defendants argue that although image quality determination and enhancement are

crucial steps described in the specification, there is no mention of image quality determination and enhancement within the claims of the ‘474 Patent. Therefore, the claims in the Patent are overly broad and invalid under § 112.

Defendants further argue that not only has Plaintiff failed to claim a fingerprint identification system that includes image quality determination and enhancement, but by drafting the claims of their Patent so broadly, they have effectively claimed a *non-enhancement* identification system (a system Defendants argue Plaintiff has not invented). A non-enhancement fingerprint identification system would be able to identify the unique identifying characteristics of a fingerprint without enhancing the image. In other words, after the camera takes an image, and that image is transferred from the digitizer to the computer, in a non-enhancement system, the computer program would be able to identify the unique characteristics by type without using any image quality determination or enhancement features. This is contrary to what is stated in the ‘474 Patent specification, which explains that once the image has been transferred to the computer, the computer program identifies the quality of the image and cleans up any errors on the image through enhancement. *See, e.g.*, ‘474 Patent at 5:23-30; 7:35-61. Yet according to Defendants, the claims of the ‘474 Patent encompass a non-enhancement system which can identify the unique characteristics by type and assign a unique characteristics code without employing image quality determination or enhancement. Because the claims of a patent cannot overreach what is set forth in the specification, Defendants argue that the ‘474 Patent is overly broad and therefore invalid.

B. Legal Standard

Because a patent is presumed to be valid, the evidentiary burden for demonstrating that a

patent is invalid is clear and convincing evidence. *See, e.g., WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1355 (Fed. Cir. 1999). Under § 112, the patent application must describe and enable the full scope of what the patent applicant claims is part of his invention. An applicant's failure to satisfy any one of these three requirements in § 112 warrants invalidating a patent:

The specification shall contain a *written description* of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to *enable* any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant *regards as his invention*.

35 U.S.C. § 112, ¶¶ 1-2 (emphasis added).

First, the written description requirement requires that the patent applicant “possessed the invention at the time of the original filing.” *Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1366 (Fed. Cir. 2004) (citing *Moba v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320 (Fed. Cir. 2003)). It must be conveyed “with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). Compliance with the written description requirement may be based solely on the language of the patent specification because “it is in the patent specification where the written description requirement must be met.” *University of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 927 (Fed. Cir. 2004).

Second, the enablement requirement ensures that “the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (citing *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). “[T]he scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.” *In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970). More importantly, the scope of the claims must not be broader than what is set forth in the specification. *Nat'l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195-96 (Fed. Cir. 1999).

Third, under the “regards as invention” requirement, a patent fails as invalid if “it would be apparent to one of skill in the art, based on the specification, that the invention set forth in a claim is not what the patentee regarded as his invention.” *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002).

If the Court finds that the ‘474 Patent fails to meet any of these requirements, the Patent will be deemed invalid. However, before addressing the validity of the Patent under the requirements of § 112, an analysis of Plaintiff’s response to Defendants’ motion is necessary.

C. Plaintiff Argues that Image Determination and Enhancement Should Be Read Into the Claims

Plaintiff does not seem to disagree with Defendants that without image quality determination and enhancement in the claims, the ‘474 Patent is invalid under § 112; rather, Plaintiff disagrees with Defendants’ contention that image quality determination and enhancement are absent from the claims. Plaintiff contends that image quality determination and

enhancement are in fact structure for two of the means-plus-function limitations and, therefore, should be read into the claims. Specifically, Plaintiff argues that enhancement should be read into the Third Clause of Claim 1, “means for identifying each unique characteristic by type,” and the Fourth Clause of Claim 2, “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position.” Plaintiff made no mention in its claim construction briefs that enhancement or image quality determination should be read into these claims, but raised this proposed construction for the first time in its Memorandum Opposing Defendants’ Motion for Summary Judgment. Because the Court is ruling on claim construction issues and this summary judgment motion together, the Court will address whether image quality determination and/or enhancement can be read into either of these clauses.

As stated above, the parties have agreed that “means for identifying each unique characteristic by type” and “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position” are means-plus-function limitations under 35 U.S.C. § 112, ¶ 6. Means-plus-function limitations are characterized by the “means for” language, *Lockheed Martin Corp. v. Space Systems/Loral, Inc.*, 249 F.3d 1314, 1324 (Fed. Cir. 2001), and they encompass “a function to be performed rather than definite structure or materials for performing that function.” *Chiumenti Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1307 (Fed. Cir. 1998). “Such a limitation must be construed ‘to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.’” *Id.* at 1307-08 (citing 35 U.S.C. § 112, ¶ 6). When construing a means-plus-function limitation, the court first identifies the claimed function. Second, the court determines from the

specification what structure is disclosed that corresponds to the claimed function. *See, e.g.*, *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002). As set forth previously, the Court has construed the function for “means for identifying each unique characteristic by type” as identifying each unique characteristic by type that the computer is programmed to find. Also, the function for “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position” is separating out from the characteristics its unique identifying characteristics that the computer is programmed to find and identifying them by type and position. Furthermore, “each” in both of these clauses refers to only those unique identifying characteristics that the computer is programmed to find. Plaintiff does not argue that enhancement is a function, but rather the structure that corresponds to these means-plus-function limitations.

The Court finds that image quality determination and enhancement can neither be read into Clause Three of Claim 1, “means for identifying each unique characteristic by type,” nor can they be read into Clause Four of Claim 2, “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position,” as corresponding structure. This is because enhancement and image quality determination are not structures, but are functions. “[S]tructure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). Moreover, “[s]tructural features that *do not actually perform the recited function* do not constitute corresponding structure and thus do not serve as claim limitations.” *Asyst Technologies, Inc. v. Empak, Inc.*, 268 F.3d 1364, 1370 (Fed. Cir. 2001) (emphasis added).

Structure refers to an actual device or apparatus that performs the claimed function, whereas image quality determination and enhancement cannot actually do anything. Image quality determination and enhancement are in fact functions themselves. Just like the function of turning on an oven is not structure that actually cooks the food, image quality determination and enhancement are not structures that actually identify characteristics or separate out the characteristics.

The Patent never suggests that image quality determination and enhancement are structures that actually perform the claimed functions. Throughout the entire '474 Patent, image quality determination and enhancement are described as functions that are performed by the computer programmed to perform the algorithm. Some examples of image quality determination are found in the Summary of the Invention. "The computer program identifies what kind of print or quality of the read. It then determines if the image needs to be enhanced. If it needs to be enhanced the program will determine how bad the print is . . ." '474 Patent at 5:24-30. "The program is designed to determine what kind of read was made and what level of the quality [sic: the] image was . . ." *Id.* at 6:62-63. Enhancement is also discussed as a process that the computer program takes to correct an image. Nowhere is enhancement mentioned as a physical structure that is performing a function.

This *process* of determining the quality of the image of the biological part or the quality of the read involves cleaning up the fingerprint image that was given to it by the fingerprint reader. It does this by examining the print to determine the ridges from the valleys. It then makes any corrections or enhancements to the print.

Id. at 7:3-7 (emphasis added). The '474 Patent explains that a "computer program" enhances the image:

A computer program that enhances the biological characteristic image takes the digital representation of the image and through a special process finds areas where the image is not clear. It also takes those unclear areas and calculates what the missing parts of the image should look like. On fingerprints, for example, during the process of capturing the fingerprint image, some of the ridges or valleys may be lost or distorted. This program can calculate where the missing or distorted ridges and valleys should be and where they should connect.

Id. at 10:46-56.

Moreover, the prosecution history of the '474 Patent supports the conclusion that image quality determination and enhancement are not structure. One of the claims in the Patent Application, Claim 27, stated that there was a "means to enhance the fingerprint image through a computer program." This claim was cancelled during the prosecution of the Patent and is absent from the Patent that was issued by the PTO. Because "means to enhance the fingerprint image through a computer program" is a means-plus-function limitation, it is not possible that "enhancement" refers to a structure because "enhanc[ing] the fingerprint image" is the actual claimed function. Thus, neither enhancement nor image quality determination can be read into the claims as corresponding structure.

A similar result was reached in *Asyst Technologies, Inc. v. Empak, Inc.*, 268 F.3d 1364 (Fed. Cir. 2001), where the Federal Circuit rejected the argument and ruling of the district court that a communications line was corresponding structure for a "second microcomputer means for receiving and processing digital information communicated with said respective two-way communication means." *Id.* at 1370-71. This argument was rejected because the communications line did not actually perform the claimed function. *Id.* at 1371. Rather the communication line carried data between a local control processor and a communicating means.

Id.

An electrical outlet enables a toaster to work, but the outlet is not for that reason considered part of the toaster. The corresponding structure to a function set forth in a means-plus-function limitation must actually perform the recited function, not merely enable the pertinent structure to operate as intended, which is the case for the structure identified as line 51. We therefore disagree with the district court that line 51 should be regarded as part of the structure corresponding to the functions set forth in the “microcomputer means” limitation.

Id. at 1371.

Just as the communications line was not structure for “receiving and processing digital information” in *Asyst*, image quality determination and enhancement, both of which are functions, are not structure for the means-plus-function limitations in the instant case.

Furthermore, the Court is unable to read enhancement and/or image quality determination into “identifying each unique characteristic by type” or “separating out from the characteristics its unique identifying characteristics and identifying them by type and position,” or any other claim, because image quality determination and enhancement are two entirely separate functions from the stated functions within the claims. “In identifying the function of a means-plus-function claim, a claimed function may not be improperly narrowed or limited beyond the scope of the claim language.” *Lockheed Martin*, 249 F.3d at 1324 (citing *Micro Chem. Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999)). The Background and Summary of the Invention makes it clear that the process for the fingerprint identification system once the image has been transferred to the computer first involves the function of determining the quality of the image. Then, the image is enhanced. It is only *after* the image has been enhanced that the unique characteristics are identified. The Summary describes reading the quality of the image and enhancing the image in an entirely separate paragraph from the discussion on identifying unique characteristics. *See* ‘474 Patent at 5:24-30. Also, when identifying unique characteristics

is discussed, there is no mention of determining the quality of the read or enhancing the image.

See id. at 5:31-34. It is clear that enhancement and image quality determination are separate functions.

The prosecution history of the ‘474 Patent makes this even more apparent. As stated previously, Claim 27, “means to enhance the fingerprint image through a computer program” was included in the Patent Application at the same time that “means for identifying each unique characteristic by type” and “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position” were included. This is evidence that enhancement is a separate function because *all* of these separate functions were included together. In conclusion, neither enhancement nor image quality determination can be read into these claims because the functions are entirely separate from one another.

D. Validity of ‘474 Patent Under 35 U.S.C. ¶ 112

Because the Court finds that image quality determination and enhancement cannot be read into the claims, either as functions or corresponding structure, the final issues before the Court are whether the ‘474 Patent claims a non-enhancement system, and whether the ‘474 Patent is invalid under 35 U.S.C. ¶ 112.

1. Plaintiff Claims a Non-Enhancement Fingerprint Identification System

Plaintiff and Defendants never argue in their claim construction briefs that image quality determination or enhancement are included within any of the claims. In addition to Clause Three of Claim 1, “means for identifying each unique characteristic by type,” and Clause Four of Claim 2, “means for separating out from the characteristics its unique identifying characteristics and identifying them by type and position,” which have already been discussed, none of the means-

plus-function limitations include image quality determination and enhancement as functions.

Also, if enhancement were required by any of the other claims, then “means to enhance the fingerprint image through a computer program,” which was included in the Patent Application as Claim 27, would be redundant and superfluous. Defendants correctly rely on *Wenger Mfg., Inc. v. Coating Machinery Systems, Inc.*, 239 F.3d 1225 (Fed. Cir. 2001), because the doctrine of claim differentiation is relevant here. “Under the doctrine of claim differentiation, each claim in a patent is presumptively different in scope.” *Id.* at 1233 (citing *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998)).

The Court agrees with the Defendants’ reasoning. While the enhancement claim (Claim 27) was ultimately cancelled before the ‘474 Patent was issued, that claim indicates the correct scope of the claims upon which it depended (the issued claims 1 and 2) did not include image quality determination or enhancement. Claim 27 recited a separate and distinct function, which is not recited in any of the clauses within Claims 1 and 2 of the ‘474 Patent. Thus, Claim 27 within the Application has a different scope than issued Claims 1 and 2, and therefore, Claims 1 and 2 do not require enhancement. Moreover, because Claim 27 added the enhancement function (“means to enhance the fingerprint image through a computer program”), the patent examiner must have construed the issued Claims 1 and 2 to *not* require the enhancement function. Otherwise, Claim 27 would have added no limitation. The Court agrees with Defendants that Plaintiff claims a non-enhanced fingerprint identification system. While image quality determination and enhancement are clearly explained throughout the specification, there is simply no mention of these functions anywhere in the ‘474 Patent’s claims. Thus, if

enhancement is absent from the claims, then Defendants are correct that Plaintiff has claimed a fingerprint identification system that lacks image enhancement.

2. The ‘474 Patent Fails to Satisfy the Written Description, Enablement, and “Regards As Invention” Requirements Under § 112

The Court now confronts whether a non-enhanced fingerprint identification system is valid under 35 U.S.C. § 112. Determining and enhancing image quality is discussed as a “crucial” part of the invention throughout the ‘474 Patent because it distinguishes prior art. The end of the Background of the Invention discloses the importance of image enhancement:

None of the above mentioned patents uses any means to determine the quality of the image being read or the quality of the actual biological part. Neither do they provide for a computer program to make enhancements to those images in order to compensate for bad or poor reads and or poor characteristic of the actual biological part. This is a *crucial process* when comparing biological parts with stored images of those biological parts. Because the lines or identifying ridges and characteristics change from one read to the next, some means *must be provided* to determine those changes and a way to compensate for those changes. The present invention does that.

‘474 Patent at 4:64-5:8 (emphasis added). Not only is image enhancement a “crucial process,” it “must be provided” in order to compensate for the changes present in the reads. *Id.* at 5:2-3; 5:6.

The Summary of the Invention also stresses how important image enhancement is to this invention:

Determining the quality of the scanned image is *critical* to the process of comparing different biological parts or images of fingerprints. A poor print or read could produce hundreds, sometimes thousands, of end of lines, false (Y) connections, or false (y) separations. In some cases it could even change the curves. The quality of the read or the print could change the location of the unique characteristics from read to read. The length of the lines could also be affected as well as the angles of the lines coming off of the unique characteristics. *Without a program that knows how to make the proper enhancements, the fingerprint would have to be almost exact from one read to the next. Obtaining exact reads may be almost impossible.* The program can also tell to a great degree what unique characteristics found are accurate and stable from one read to another. Further the program can tell whether or not the

image or print is of a poor quality; i.e., does the actual print or image of the biological part appear to be such that in some areas or parts the print is missing or broken up.

Id. at 7:35-53 (emphasis added). This paragraph in the Summary is another example of the Patent emphasizing how imperative image enhancement is. “Determining the quality of the scanned image is critical . . .” *Id.* at 7:35. “Without a program that knows how to make the proper enhancements, the fingerprint would have to be almost exact from one read to the next.”

Id. at 7:44-46. Even more conclusive on this point is that image enhancement is necessary because “[o]btaining exact reads may be almost impossible.” *Id.* at 7:46-47.

The Detailed Description of the Patent illustrates what an image looks like without enhancement (Figure 4) and what the same image looks like after the image has been read and enhanced (Figure 5). When describing Figure 4, the Description states that “[w]ithout enhancement it would be difficult for a graphic comparison to be made . . .” *Id.* at 11:22-24. Furthermore, “[t]he computer program would have a difficult time in identifying the end of lines, the (Y’s) or even line characteristics with any degree of accuracy.” *Id.* at 11:16-18. In Figure 4, portions of the fingerprint have been highlighted and the lines are quite broken up. In contrast, Figure 5 has been corrected and the Y lines and end lines are clearly identifiable. *Id.* at 11:42-44. Finally, at the conclusion of the Detailed Description, it states: “None of the prior art patents includes a process for enhancing the images. This is a significant improvement because the fingerprint image changes dramatically from one read to the next.” *Id.* at 12:46-49.

Although the specification is clear that image enhancement is crucial to the invention, the failure to claim either image determination or enhancement seems to indicate that the invention can work with or without enhancement. From a plain reading of the ‘474 Patent, it appears that

the Patent can accurately compare a live fingerprint image with a code that has been stored on a magnetic strip in order to get a match, *using both a non-enhancement and enhancement system*.

Yet crucial to this case, the ‘474 Patent must describe and enable the full scope of what the patent applicant claims. 35 U.S.C. § 112 requires that the specification “contain a written description of the claimed invention and the manner and process of making and using that invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which that invention pertains, or with which it is most nearly connected, to make and use that invention.” *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993). It is clear that the specification enables an enhancement system. However, in order for the ‘474 Patent to be valid, it must also enable a non-enhancement fingerprint identification system.

This case is analogous to *LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336 (Fed. Cir. 2005). *LizardTech* involved a patent that described a technology known as “wavelet transforms,” which are able to compress digital images without losing information or creating defects. *Id.* at 1337. The patent specification disclosed a “DWT-based compression” process that would create a “seamless DWT” (discrete wavelet transformations). *Id.* at 1343. Furthermore, the specification was clear that “maintain[ing] updated sums” of DWT coefficients was the *only* method for creating a seamless DWT. This method was distinguished by the applicant as an improvement over the “disfavored, nonseamless prior art.” *Id.* at 1345. However, the claims of the patent lacked the “maintain updated sums” limitation. *Id.* at 1344. In other words, the patent applicant disclosed only one way of achieving compression of digital images in the specification, yet the applicant generically claimed how to achieve this result without limiting the claims to this one method. Although the applicant disclosed only one way

of achieving the defect-free result, the claims were not limited accordingly. The Federal Circuit affirmed the district court's granting of summary judgment that the claims were invalid under the written description and enablement requirements. *Id.* at 1346-47.

With respect to the written description and enablement requirements, the court explained that "it is unnecessary to spell out every detail of the invention in the specification; *only enough must be included* to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation." *Id.* at 1345 (emphasis added). However, because the specification did not enable other processes for creating a seamless DWT, using "updated sums of DWT coefficients" was maintained as the only method throughout the specification. *Id.* at 1344. "After reading the patent, a person of skill in the art would not understand how to make a seamless DWT generically and would not understand LizardTech to have invented a method for making a seamless DWT, except by 'maintaining updating sums of DWT coefficients.'" *Id.* at 1345.

There are other examples of when a patent has been invalidated because the claims are not limited to what is set forth in the specification. *See, e.g., Automotive Technologies Intern., Inc. v. BMW of North America, Inc.*, 501 F.3d 1274 (Fed. Cir. 2007) (affirmed summary judgment of invalidity because the specification enabled only mechanical side impact sensors when the claims included both mechanical and electronic side impact sensors); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d 1371 (Fed. Cir. 2007) (affirmed summary judgment of invalidity where claims to front-loading fluid injectors were not limited to injectors with jackets, but the specification did not enable injectors without jackets); *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234 (Fed. Cir. 2003) (affirmed summary judgment of invalidity because claims to steel

strips were broad enough to cover strips of either Type I aluminum or Type II aluminum, but the specification enabled only strips with Type II aluminum).

Similarly, the specification of the ‘474 Patent describes only one way to achieve the result – determining the quality of the image and enhancing it – yet the claims are not limited to an enhancement system. Rather, as in *LizardTech*, the ‘474 Patent is broadly claiming a result even though the specification only describes achieving that result using a system of image enhancement.

Therefore, because one skilled in the art would be unable to determine from the specification how to use this invention without enhancement, the Court finds that the ‘474 Patent is invalid. A non-enhancement system is clearly not part of this invention because nowhere in the specification does it lay out how this invention works without the enhancement feature. As laid out previously, image determination and enhancement are “critical” and “crucial” to this invention. *See* ‘474 Patent 5:2; 7:35. Without these features, obtaining accurate reads might be “almost impossible.” *See id.* at 7:47. It is obvious from the ‘474 Patent that enhancement is imperative to this invention because it is explained at length and discussed in many different parts of the specification.

Accordingly, the ‘474 Patent claims are invalid under the written description requirement because the specification does not provide a written description of the full scope of the claimed invention. (There is no written description of a system that can achieve what is set forth in the Patent without utilizing image quality determination and enhancement.) Also, it is clear that Plaintiff did not possess the invention it was claiming at the time it was filed. *See Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1366 (Fed. Cir.

2004) (citing *Moba v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320 (Fed. Cir. 2003)) (requiring that the patent applicant possess the actual invention when prosecuting a patent); *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991) (same). Similarly, the claims are invalid under the “regards as invention” requirement because they do not require image quality determination and enhancement, even though that is clearly what Plaintiff regarded as his invention, shown by the specification, a system where it is crucial to use image enhancement in order to identify the unique characteristics and assign a code that can be stored on 100 bytes.

See Allen Eng’g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1349 (Fed. Cir. 2002) (requiring it must be “apparent to one of skill in the art, based on the specification, that the invention set forth in a claim is not what the patentee regarded as his invention”). A person of ordinary skill in the art would find by the requisite clear and convincing evidence that the written description and “regards as invention” requirements have not been satisfied.

Finally and most importantly, the Court finds that there is clear and convincing evidence that the ‘474 Patent fails to teach one skilled in the art how to make and use the claimed system without image determination and enhancement. *See Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (citing *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)) (“[T]he specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’”). The crux of this case depends on the fact that enhancement is missing from the claims, but the ‘474 Patent never describes how to make the fingerprint identification system work without enhancement. Defendants are correct in stating that the ‘474 Patent teaches away from a system without image quality determination and enhancement because these features are described as “crucial” and

“critical.” *See* ‘474 Patent at 5:2; 7:35. It would be “almost impossible” for the system to work without image determination and enhancement. *See id.* at 7:47. Accordingly, the ‘474 Patent is invalid because it does not enable systems without image quality determination and enhancement capability, and the scope of the claims includes such a non-enhancement system.

“While it is true that not every advantage of the invention must appear in every claim, it would be peculiar for the claims to cover prior art that suffers from precisely the same problems that the specification focuses on solving.” *LizardTech*, 424 F.3d at 1343-44 (citation omitted). Image quality determination and enhancement are described throughout the ‘474 Patent as very important functions and features that distinguish the invention from the prior art. “None of the above mentioned patents uses any means to determine the quality of the image being read or the quality of the actual biological part. Neither do they provide for a computer program to make enhancements to those images in order to compensate for bad or poor reads” ‘474 Patent 4:64-5:1. Thus, just as “maintain[ing] updated sums” of DWT coefficients was the sole and crucial method for the invention in *LizardTech*, image quality determination and enhancement for the fingerprint identification system are equally imperative. The absence of an enhancement method provides for a generic method – including both enhancement and non-enhancement – and because there is no mention of how to perform the invention through non-enhancement, a person of skill in the art would not understand how to enable, make, and use this invention without undue experimentation. Nor would a person of ordinary skill in the art find that the patent applicant “possessed” the claimed invention or that the invention set forth in the claims is what the applicant “regarded as his invention.”

Accordingly, the Court grants summary judgment.

V. Defendants' Motion to Strike the Declarations of Peter T. Higgins

The last issue before the Court is Defendants' Motion to Strike the Declarations of Peter T. Higgins (the "Higgins' Declarations"). Plaintiff filed two expert disclosures of Mr. Higgins on November 6, 2007 in opposition to the motions for summary judgment.³ Defendants argue that the Higgins' Declarations relate to claim construction issues and are therefore eight months late (expert disclosures were due in March 2007). Plaintiff claims that these declarations were filed in support of its Memorandum Opposing Defendants' Motions for Summary Judgment, and therefore were filed on time. The Court agrees with Plaintiff and denies the motion.

Federal Rule 56(c) governs:

(c) Motions and Proceedings Thereon.

The motion shall be served at least 10 days before the time fixed for the hearing. *The adverse party prior to the day of hearing may serve opposing affidavits.* The judgment sought shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law

Fed. R. Civ. P. 56(c) (emphasis added). Plaintiff is right that it had up until the day before November 20, 2007, the day of the hearing, to submit an affidavit. Because Plaintiff filed the Higgins' Declarations two weeks prior to the hearing, Plaintiff filed them on time.

While Defendants are correct that there are matters within the Higgins' Declarations that contain claim construction issues, the Higgins' Declarations address issues that are raised by the

³ The declarations are: The Declaration of Peter T. Higgins in Support of Plaintiff's Memorandum Opposing Defendants' Motion for Summary Judgment of Invalidity Under the Written Description, Enablement, and "Regards as Invention" Requirements of 35 U.S.C. § 112 and The Declaration of Peter T. Higgins in Support of Plaintiff's Memorandum Opposing Defendants' Motion for Summary Judgment of Invalidity Under the Definiteness Requirement of 35 U.S.C. § 112.

summary judgment motions as well. There is a substantial amount of overlap between the claim construction issues and the issues raised in the summary judgment motions, so it is not surprising that Plaintiff defended the summary judgment motions by arguing how the Court should construe the claims. Defendants chose to bring the summary judgment motions at the time that they did, and it is only fair that Plaintiff should be allowed the opportunity to present evidence in the form of affidavits in order to respond.

The Court also finds that the Higgins' Declarations are proper expert opinions under Federal Rule of Evidence § 702:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702.

Mr. Higgins is a person of ordinary skill in the art and his opinions are based upon his review of many materials including the '474 Patent, the briefs pertaining to the motions for summary judgment, and other expert reports. He states that "[t]he conclusions and opinions summarized in this declaration are the result of my own analyses and evaluations completed in accordance with the standards of my profession, and opinions offered are consistent with the standards of my profession and applicable science." *See Declaration of Peter T. Higgins in re Definiteness Requirement of 35 U.S.C. § 112.* Mr. Higgins did not attempt to rewrite the specification as Defendants suggest; he gave his opinion as one skilled in the art and he relied on proper methodology in reaching his conclusions.

Having addressed the timeliness and properness of the Higgins' Declarations, the Court points out that when construing the claims within a patent, courts should rely on the "intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics Corp. v. Conceptronics, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Furthermore, "[i]n most situations, an analysis of the intrinsic evidence alone will resolve the ambiguity in a disputed claim term." *Id.* at 1583. "In such circumstances, it is improper to rely on extrinsic evidence." *Id.* The Court notes that the value added by the Higgins' Declarations is slight because the '474 Patent claims, specification, and prosecution history were probative on construction issues.

VI. Conclusion

The Court has now construed all the disputed claims in the '474 Patent and has ruled on all pending motions. The Court finds that Defendants' Motion for Summary Judgment of Invalidity Under the Definiteness Requirement of 35 U.S.C. § 112 is moot, and Defendants' Motion for Summary Judgment of Invalidity Under the Written Description, Enablement, and "Regards as Invention" Requirements of 35 U.S.C. § 112 is granted. The Motion to Strike the Declaration of Peter T. Higgins is denied.

IT IS SO ORDERED.

Dated this 2nd day of January, 2008.



Dee Benson
United States District Court Judge